



Curriculum Aims

Subject – Science



Aims & content of the Science curriculum at Mount Primary

- At Mount Primary School, we follow the National Curriculum for Science. We teach science through stories and projects, so that learning is given purpose and relevance to the real world.
- The Early Years Foundation Stage (EYFS) and Key Stage One (KS1) are taught in discrete year groups. However, Lower Key Stage Two (LKS2) and Upper Key Stage Two (UKS2) are taught in mixed Year groups. Therefore, a two-year rolling programme has been designed to ensure full coverage of the curriculum.
- Within all Key Stages, we ensure that units, such as 'plants' are covered in the Summer Term in order to allow children to experience growth and change practically.
- In Key Stage 1, seasonal changes are plotted out across the year so that children can observe changes as they occur.
- In Year 2 Living Things and their Habitats is split over two half terms; this allows children to revisit knowledge and explore living things outside at different points in the year. It also allows extra time to focus on microhabitats.
- As Key Stage One are taught in discrete year groups, progression in knowledge and skills is followed appropriately. Ensuring this progression through our rolling programme has been a priority. Therefore, in UKS2, both the Year 5 and 6 'Animals including Humans' units are covered to ensure children experience the Year 5 unit first and are able to build upon knowledge and skills in the Year 6 unit. This is also true of the unit 'Living Things and their Habitats' so that both the Year 5 and 6 objectives are covered within the same cycle and progress of knowledge and skills is developed.
- Though the unit of 'sound' only occurs once across the primary phase, we decided that we would cover this unit within a half term, due to the fact that we place great emphasis on the language of sound through our music teaching. Year 3/4 teachers are aware of the knowledge expectations in the sound unit and ensure that this knowledge is reinforced through music teaching.
- In LKS2, year 3 and year 4 objectives for 'Animals including Humans' is covered within the same cycle. Again, this ensures that children are able to build upon knowledge and skills.
- Curriculum mapping shows clear progression of knowledge and working scientifically.
- Through working scientifically, children are also given ample opportunity to apply and deepen knowledge and skills.
- Planning formats also include the appropriate 'working scientifically' statements in order to ensure that children cover all aspects of working scientifically within the three bands: KS1, LKS2 and UKS2.
- Vocabulary expectations are set out on the curriculum map and these are also highlighted lesson-by-lesson within a unit plan.
- The links to prior learning are set out on the curriculum map as well as on the unit plan. This ensures children are confident with previously learned knowledge before building on this.
- Post learning is also highlighted on the curriculum map. Though, children are not expected to know this, it gives the teacher an idea of where the children will move their learning onto next.
- Most units are revisited throughout the primary phase, or have close links with units previously learned. The exceptions to this are of year 4 sound, year 5 earth and space and year 6 evolution and inheritance. However, with strong links to music teaching, the sound unit is not only explored through science. The Year 5 and 6 units are taught during the Autumn term as this allows for these units to be taught across the longest half terms, thus assigning more time to teaching and learning. Though Evolution and Inheritance is only taught once in the primary phase, it builds upon teaching and learning in Years 2, 3, 4 and 5. Earth and Space builds upon knowledge taught in Year 1 through 'seasonal change'.

How do you know children have learned that knowledge?

- Unit plans begin with a short activity to ensure key prior knowledge is embedded before teaching new knowledge.
- Each lesson also begins with a short activity to recaps on prior learning and ensure that links are made explicit to children and encourage 'sticky learning.'
- Children have opportunities to work scientifically within each unit; this allows children to apply and develop their understanding of a unit in a practical way.
- Each unit has a 'knowledge mat' containing key concepts and vocabulary; these are used to assess children's knowledge and understanding of current and past learning.

- Where appropriate, links are made to other subjects. An example of this is nutrition, which is covered in science and in design and technology. Therefore, vocabulary is revisited in different subjects and knowledge is re-applied. Another example of this is sound, which is covering within science as well as within music teaching. Making these links explicit to children allows them to reinforce their understanding and reapply their knowledge.

How the science curriculum caters for all learners

- Science is a very practical subject and so it gives learners the opportunity to work in a variety of ways, from designing and completing experiments to recording and analysing results. Children get ample opportunity to work scientifically, and record data using a variety of equipment as well as presenting their findings in a way chosen by themselves. Children are encouraged to work in pairs, peer support groups as well as individually and adults offer support to facilitate learning or scaffold individual children as appropriate.
- Class teachers ensure that they are fully aware of the needs of the children in their class. Planning ensures that prior learning is revisited and possible misconceptions and gaps from limited life experiences are anticipated. Teachers also consider barriers to learning when planning and planning indicates how children with SEND or DAP will be supported to overcome any possible barriers. At our school, teachers are highly skilled at differentiating resources, scaffolding tasks, using talk and collaboration to support and challenge pupils in their science lessons.
- As science is a very hands on subject, it allow children to engage in learning in a very practical way. This can be beneficial to all learners and especially those children with SEND, who may need to apply their knowledge and skills in order to rehearse and deepen their learning. As well as this, concrete equipment is often used in science and this helps to scaffold those with SEND. An extra adult has been assigned to the teaching of core subjects, where possible, to ensure that children with SEND have support to engage fully with the learning. This can take the form of pre-learning so that vocabulary and equipment is looked at in advance to ensure the children are confident with the use of both. This also includes the adult supporting children with SEND to engage in learning through facilitating discussion and asking open questions to prompt the children to think scientifically. Peer support is also used to ensure all children are able to access the learning. For children with SEND this allows them the opportunity to discuss concepts with a peer and rehearse their learning through discussion. All children are exposed to age appropriate teaching. However, some of the outcomes may vary to ensure that the ability of each child is accounted for and progress for individuals is celebrated. Other forms of scaffolding in science may take the form of question stems, sentence openers, pre-drawn tables for children to complete, or taking photographic evidence of children engaging in learning as opposed to expecting each lesson to be evidenced with a written outcome.
- High levels of challenge and ambition are set for all learners and teaching is in line with age related expectations. This ensures that all children are exposed to National Curriculum expectations. However, some children may be encouraged to think more independently, whereas other children may still require support, either through resourcing, scaffolding or through adult facilitating learning, in order to achieve their full potential.

How does your content selection develop pupils' cultural capital? (knowledge they need to become educated citizens – introducing them to the best that has been thought and said and to appreciate human creativity and achievement).

- Working scientifically allows children practical experience of scientific concept.
- Science is taught through stories and projects so that science is given purpose and also a real life context through which questions are asked and problems are solved. An example of the possible projects include 'How the Elephants Lost their Tusks,' which allows children to explore evolution and inheritance through an understanding of how hunting has had an impact on the evolutions of some elephants.
- Science at Mount Primary School offers ample opportunity to work outside of the classroom. Different units actively encourage outdoor learning (such as plants, rocks, living things and their habitats). However, teachers are skilled in using the outdoor space for a variety of purposes, such as watching how shadows change through the day, creating the water cycle on the playground, drawing round our bodies when looking at muscles and bones.
- Each unit of science across the school, highlights a prominent figure within this field for children to become familiar with. These figures represent both the contemporary and historical, and they represent diversity so that all children can see a role model in the field of science that they can identify with and aspire to. These figures have an international representation. These figures also aim to break stereotypes

so that children feel confident that they can achieve within the area of science, whatever their background.

- Promotion of STEM (science, technology, engineering and mathematics) activities through science teaching as well as after school clubs also highlights the opportunities in the wider world that are available for children with an interest in one of these subjects.
- Science through projects also helps children to develop the fundamental British values of democracy, the rule of law, individual liberty, and mutual respect and tolerance of those with different faith and beliefs. These projects are either based on a real life situation or set within a real world context. Therefore, through science children get to explore other cultures and engage with respectful discussions in order to build mutual respect and tolerance. These projects also highlight contemporary issues, such as global warming and plastic pollution. Therefore, through science, children engage in discussions that have democracy, the rule of law and individual liberty at their heart and children are able to understand as well as challenge current ways of thinking.
- Science is a practical subject, which has at its core, the acceptance of how important both success and failure are in moving thinking on. Therefore, children are encouraged to predict, test their prediction and discuss whether their result confirmed or refute their original thinking. This helps children to build resilience as they are encouraged to do this in a safe environment. We also look at scientific figures who are prominent because of their scientific resilience.
- Children often work collaboratively in science, developing respect and tolerance for peers. They are often asked to present work to peers and offer constructive feedback, again developing self-esteem, self-confidence and mutual respect.